

CLAIMS

WHAT IS CLAIMED:

1. A communication system, comprising:
  - a bus including at least one data line and control lines;
  - 5 a first device coupled to the bus;
  - a second device coupled to the bus, the data line being coupled between the first and second devices; and
  - a handshaking unit coupled to the control lines of the bus and being adapted to determine if the first and second devices are capable of completing a data transfer and enable the first and second devices to facilitate the data transfer.
- 10
2. The communication system of claim 1, wherein the control lines comprise a first data available line coupled to the first device and a second data available line coupled to the second device, and the handshaking unit is adapted to determine that the first and second devices are capable of completing the data transfer in response to the first and second data available lines being asserted.
- 15
3. The communication system of claim 2, wherein the control lines include a first enable line coupled to the first device and a second enable line coupled to the second device, and the handshaking unit is adapted to assert the first and second enable lines to facilitate the data transfer.
- 20
4. The communication system of claim 1, wherein the first and second devices include UTOPIA interfaces for communicating data over the bus.

5. The communication system of claim 1, wherein the control lines include a clock line and the handshaking unit is adapted to provide a clock signal to the first and second devices on the clock line.

5 6. The communication system of claim 1, wherein the first and second devices comprise a first pair of devices, and the communication system further comprises a plurality of pairs of devices, each pair being configured to respond to a shared address.

7. The communication system of claim 6, wherein the handshaking unit is  
10 adapted to sequentially poll the pairs of devices to determine if both of the devices in a particular pair are capable of completing the data transfer.

8. The communication system of claim 7, wherein the control lines include an address line and the handshaking unit is adapted to drive an address on the address line to  
15 poll the particular pair of devices.

9. The communication system of claim 1, wherein the first and second devices are adapted to communicate data arranged in cells.

20 10. The communication system of claim 9, wherein each cell comprises an asynchronous transfer mode (ATM) cell.

11. The communication system of claim 1, wherein the first device comprises an interface device and the second device comprises a modem.

12. The communication system of claim 6, further comprising:  
an interface device having a plurality of ports; and  
a plurality of modems, wherein each pair of devices includes one of the ports and one  
of the modems.

5

13. A communication system, comprising:  
a bus including at least one data line;  
a first device coupled to the bus and having a UTOPIA interface for communicating  
over the bus;  
a second device coupled to the bus and having a UTOPIA interface for  
communicating over the bus, the data line being coupled between the first  
device and the second device; and  
a handshaking unit coupled to the bus and being adapted to provide handshaking  
signals to the first and second devices to complete a data transfer between the  
first and second devices.

14. The communication system of claim 13, wherein bus includes control lines,  
and the handshaking unit is adapted to provide the handshaking signals over the control lines  
without interfacing with the data line.

20

15. The communication system of claim 13, wherein the control lines comprise a  
first data available line coupled to the first device and a second data available line coupled to  
the second device, and the handshaking unit is adapted to determine if the first and second  
devices are capable of completing the data transfer in response to the first and second data  
available lines being asserted.

16. The communication system of claim 15, wherein the control lines include a first enable line coupled to the first device and a second enable line coupled to the second device, and the handshaking unit is adapted to assert the first and second enable lines to facilitate the data transfer.

10

17. The communication system of claim 14, wherein the control lines include a clock line and the handshaking unit is adapted to provide a clock signal to the first and second devices on the clock line.

18. The communication system of claim 14, wherein the first and second devices comprise a first pair of devices, and the communication system further comprises a plurality of pairs of devices, each pair being configured to respond to a shared address.

15

19. The communication system of claim 18, wherein the handshaking unit is adapted to sequentially poll the pairs of devices to determine if both of the devices in a particular pair are capable of completing the data transfer.

20

20. The communication system of claim 17, wherein the control lines include an address line and the handshaking unit is adapted to drive an address on the address line to poll the particular pair of devices.

21. The communication system of claim 13, wherein the first and second devices are adapted to communicate data arranged in cells.

25

22. The communication system of claim 21, wherein each cell comprises an asynchronous transfer mode (ATM) cell.

23. The communication system of claim 13, wherein the first device comprises 5 interface device and the second device comprises a modem.

24. The communication system of claim 18, further comprising:  
an interface device having a plurality of ports; and  
a plurality of modems, wherein each pair of devices includes one of the ports and one  
of the modems.  
10

25. A method for interfacing first and second devices coupled to a bus having at least one data line coupled to the first and second devices and control lines, the method comprising:

15 determining if the first and second devices are capable of completing a data transfer based on the control lines;  
providing handshaking signals on the control lines to enable the first and second devices; and  
transferring the data over the data line in response to the handshaking signals.  
20

26. The method of claim 25, wherein the control lines comprise a first data available line coupled to the first device and a second data available line coupled to the second device, and determining if the first and second devices are capable of completing the data transfer comprises determining if the first and second data available lines are in an asserted state.  
25

27. The method of claim 26, wherein the control lines include a first enable line coupled to the first device and a second enable line coupled to the second device, and providing the handshaking signals comprises asserting the first and second enable lines to facilitate the data transfer.

28. The method of claim 25, further comprising communicating with the first and second devices over the bus using a UTOPIA interface.

10 29. The method of claim 25, wherein the control lines include a clock line and providing the handshaking signals comprises providing a clock signal to the first and second devices on the clock line.

15 30. The method of claim 25, wherein the first and second devices comprise a first pair of devices, and the method further comprises:  
providing a plurality of pairs of devices; and  
configuring each pair to respond to a shared address.

20 31. The method of claim 30, further comprising sequentially polling the pairs of devices to determine if both of the devices in a particular pair are capable of completing the data transfer.

25 32. The method of claim 31, wherein the control lines include an address line and the method further comprises driving an address on the address line to poll the particular pair of devices.

33. The method of claim 25, wherein transferring the data comprises transferring the data arranged in cells.

5 34. The method of claim 33, transferring the data comprises transferring the data arranged in asynchronous transfer mode (ATM) cells.

35. The method of claim 30, further comprising:

providing an interface device having a plurality of ports; and

10 providing a plurality of modems, wherein each pair of devices includes one of the ports and one of the modems.